
Factors Predicting Client Satisfaction in Occupational Therapy and Rehabilitation

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MeSH TERMS

- logistic models
- occupational therapy
- patient outcome assessment
- patient satisfaction
- questionnaires
- rehabilitation

Client satisfaction, a widely used outcome indicator of quality in health care, is inherently client centered and important in occupational therapy. We developed an instrument called the Satisfaction With Continuum of Care Revised (SCC-R) and tested a logistic regression model of satisfaction for six predictive research questions. Data collected from 769 clients from a large rehabilitation hospital using the SCC-R were paired with data that included demographics, functional status, and measures of the rehabilitation including occupational therapy. Satisfaction was stratified into two groups, satisfied and dissatisfied. The most robust and consistent predictors of satisfaction were functional status and improvements in functional status, presence of a neurological disorder, total rehabilitation hours, and admission to rehabilitation within 15 days of condition onset. The finding that improvements in functional status, especially self-care, were predictive of satisfaction is particularly relevant for occupational therapy. Implications for practice and future research are discussed.

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Client-centered care, measured in part using measures of client satisfaction, is now frequently used in health care service delivery as an accreditation standard and indicator of quality (Yellen, Davis, & Ricard, 2002). This shift toward understanding client experiences signals an emphasis on the client as an active consumer rather than a passive recipient of health care (Speight, 2005). Satisfied clients are more likely to actively engage in rehabilitation efforts, have higher quality of life, achieve better outcomes, and return to the same provider or institution for future care (Keith, 1998). Satisfaction, as an outcome of occupational therapy, may reflect client autonomy and partnership with the practitioner (Chiu & Tickle-Degnen, 2002; Law, Baptiste, & Mills, 1995). Thus, satisfaction is a relevant outcome for occupational therapy and rehabilitation that helps describe the value of treatment interventions (Ellenberg, 1996) and document their relevance to the client's needs (Kielhofner, Hammel, Finlayson, Helfrich, & Taylor, 2004).

Satisfaction refers generally to the perceived match between expectations and actual circumstances or experiences. If the match between expectations and service circumstances is at least equal, the client is likely to feel satisfied; conversely, if the service circumstances fall below expectations, the client is likely to feel dissatisfied. Client satisfaction is most often measured using self-report rating scales, making satisfaction ratings subjective and distinct from events of care that can be observed objectively (Crow et al., 2002). Only clients can perceive and report their satisfaction. The understanding provided of clients' subjective experiences is increasingly seen as a strength of satisfaction measures (Hekkert, Cihangir, Kleesfstra, van den Berg, & Kool, 2009) and as integral to improvement of health care quality (Urden, 2002). Currently, no gold standard exists for assessing patient satisfaction

(Sen et al., 2005), but because it is a multidimensional concept, the measurement of satisfaction requires planning and rigor (Olejnik et al., 1998).

Existing research includes several studies examining the correlates or predictors of client satisfaction, but the results have been inconsistent and sometimes contradictory (Ottenbacher et al., 2001; Tooth et al., 2004). The relationship between the provider and the client, including the degree of warmth, friendliness, and sense of caring, is frequently found to be a predictor of satisfaction (Crow et al., 2002; Hush, Cameron, & Mackey, 2011; Jackson, Chamberlin, & Kroenke, 2001). Clients are more satisfied if they feel treated with respect, have input into goal setting, and receive personalized attention (Keith, 1998). Factors such as age, marital status (Tooth et al., 2004), gender, and diagnosis (Stiller, Cains, & Drury, 2009) have been inconsistently correlated with satisfaction. Longer length of stay (LOS) has been associated with higher satisfaction in some studies (Mancuso et al., 2003; Ottenbacher et al., 2001; Tooth et al., 2004); others have found shorter LOS to be associated with higher satisfaction (Grissom & Dunagan, 2001) or insignificant (Bergés, Ottenbacher, Smith, Smith, & Ostir, 2006). Perceived health status has also been found to correlate with satisfaction (Cohen, 1996).

Most satisfaction studies are designed for a specific setting (Sitzia, 1999), for a specific diagnosis or disability group (Chiu, Lam, & Hedley, 2005; Forsberg, de Pedro-Cuesta, & Widén Holmqvist, 2006; George & Hirsh, 2005), or for a specific professional group (Beattie, Turner, Dowda, Michener, & Nelson, 2005; Goldstein, Elliott, & Guccione, 2000; Hudak & Wright, 2000; Monnin & Perneger, 2002). Some studies reported satisfaction with a medical procedure in rehabilitation (Bourne, Chesworth, Davis, Mahomed, & Charron, 2010) or were descriptive in nature (Stiller et al., 2009). The development of models to describe the relationship among factors influencing satisfaction has been relatively limited, although Brown (2005) advocated for using predictive modeling of outcomes in rehabilitation facilities.

On the basis of this previous research, we grouped factors potentially related to client satisfaction into six domains. The purpose of the study described in this article was to describe the development and application of a client satisfaction questionnaire and to test the predictors of satisfaction in these six domains. The specific research questions were:

1. How do client demographic variables contribute to models of client satisfaction?
2. How does functional status at admission and discharge contribute to models of client satisfaction?

3. How does the client's medical status contribute to models of client satisfaction?
4. How does the rehabilitation process contribute to models of client satisfaction?
5. How do the client's gains contribute to models of satisfaction?
6. How does occupational therapy contribute to models of satisfaction?

Method

Research Design

This two-part descriptive study was conducted in partnership with a regional rehabilitation hospital (RRH). In Part 1, we conducted a psychometric analysis of an existing measure of client satisfaction and used it to refine a satisfaction survey. In Part 2, we administered the revised survey and conducted psychometric analyses, including factor analysis. We paired data from the revised survey with administrative and clinical data and used this merged data set to test the six primary research questions using logistic regression analysis. Clients provided informed consent to release deidentified data for program evaluation purposes. All research procedures were approved by the internal review boards of the rehabilitation hospital and the university.

Participants

All clients age 18 yr and older who were rehabilitation hospital inpatients or outpatients over a 27-mo period received the Satisfaction With Continuum of Care–Revised (SCC–R) through a single post-discharge mailing. The cover letter included the elements of informed consent; participants completed the survey and returned it in a business reply envelope provided. The response rate was 35%; 1,104 usable surveys were returned.

Two considerations influenced the sample selection. First, studies of client satisfaction are routinely limited by inflated satisfaction scores, which are usually attributed to respondents' reluctance to report undesirable ratings to their providers (Collins & O' Cathain, 2003; Crow et al., 2002). Second, logistic regression analysis was selected as the best predictive analysis technique for the research questions, and logistic regression requires that the dependent variable be defined as either *satisfied* or *dissatisfied*. The likely inflation of satisfaction scores meant that establishing a cutoff point for satisfaction and dissatisfaction was an important challenge.

With the goal of identifying more homogeneous and equal-sized groups based on theoretically sound criteria for *satisfaction* and *dissatisfaction*, we explored a variety of

solutions, including collapsing categories and setting a cutoff point based on the distribution of total satisfaction scores. These methods resulted in identification of responses as *dissatisfied* that were conceptually incongruent, such as when the respondent did not express dissatisfaction or provided a neutral response for any item. Collins and O’Cathain (2003) recommended that ratings of adequate health care experience (*satisfied*) be differentiated from optimal health care experience (*very satisfied*) and that ratings of *neutral* be considered as *dissatisfied*. On the basis of these recommendations and the data exploration, we defined *satisfied* as a rating of 5 (*strongly agree*) on every item on either the Clinical Quality or Client Centeredness subscale. *Satisfaction* was defined as 100% satisfied. *Dissatisfied* was thus defined as rating at least one item on the subscales as 1 (*strongly disagree*), 2 (*disagree*), or 3 (*neither agree nor disagree*), meaning that the participant expressed dissatisfaction on a least one item of the subscale. Data from participants who neither were 100% satisfied nor expressed any dissatisfaction were defined as ambiguous and excluded from the study.

Instruments

The independent variables from the measures used in this study are defined in Table 1.

Satisfaction With Continuum of Care—Revised. Because an acceptable existing instrument was not found, the director of quality management at a large RRH sought to design a measure of client satisfaction for use across all rehabilitation departments in quality improvement efforts. The developers of the original instrument were assembled by the director of quality management with representatives from every department. The team led by the RRH director of quality management contributed satisfaction survey items based on the six domains of quality health care identified by the Institute of Medicine (IOM; 2001): (1) safety (freedom from injury), (2) effectiveness (use of evidence-based treatments), (3) client-centeredness (responsiveness to and respect for client needs and values), (4) timeliness (reduced wait time and delays), (5) efficiency (responsible use of resources), and (6) equitability (consistent high-quality care for all). The result was a 41-item measure with a 5-point response scale. They used this instrument, the Satisfaction With Continuum of Care (SCC), to collect data from 1,800 former clients.

The RRH director of quality management asked the first author (Custer) to examine the SCC data for fit with the six aims of the IOM and psychometric properties. This analysis and subsequent measure redesign were guided by resources on best practices in instrument development

Table 1. Description of Independent Variables

Variable	Description
Age group at admission	Groups based on quartile scores: 18–59 yr, 60–71 yr, 72–80 yr, 81–100 yr
Gender	Male = 38.2%, female = 61.8%
Race	White = 94.5%, Nonwhite = 5.5% (African American, Hispanic, Asian, or multiracial)
Total FIM score at admission	Total FIM score (excluding FIM Self-Care score) at admission, range = 18–101, mean = 59.51
Total FIM score at discharge	Total FIM score (excluding FIM Self-Care score) at discharge, range = 20–122, mean = 91.22
FIM Self-Care score at admission	Sum of scores on 6 items—eating, grooming, bathing, upper-extremity dressing, lower-extremity dressing, and toileting—at admission
FIM Self-Care score at discharge	Sum of scores on 6 items—eating, grooming, bathing, upper-extremity dressing, lower-extremity dressing, and toileting—at discharge
Neurological or nonneurological condition	Neurological disorders included stroke, brain injury, spinal cord injury, and other neurological disorders; nonneurological disorders included orthopedic disorders, general rehabilitation, amputations, burns, and pulmonary disorders
Severity index	Rating on the IRF–PAI: 1 = least severity to 10 = most severity
Total number of comorbid conditions	Number of <i>ICD-9</i> comorbidity codes
Pain rating at admission and discharge	Level of pain rated by client on a 0–10 scale, with 10 being extreme pain
Time from condition onset to admission	Two groups: 0–15 days (75% of clients) or ≥16 days
Length of stay in rehabilitation	Groups based on quartile scores: 1–8 days, 9–13 days, 14–20 days, 21–77 days
Hours of rehabilitation therapy	Sum of all hours of occupational, physical, and speech therapy
Pain change score at discharge	Continuous variable from –10 (more pain) to +10 (less pain)
Discharge living situation	From discharge IRF–PAI: <i>Home</i> or <i>not to home</i> (e.g., skilled nursing facility, other dependent living situation)
Change in total FIM score from admission to discharge	Change in FIM score from admission to discharge, ranging from –12 (declined function) to 83 (improved function)
Hours spent in occupational therapy sessions	Total number of hours of occupational therapy received, range = 0–79.25, average = 14.12 hr
FIM Self-Care change score	Change in FIM Self-Care score from admission to discharge, range = –10–34, mean = 12.4

Note. *ICD-9* = *International Statistical Classification of Diseases and Related Health Problems*, 9th edition; IRF–PAI = Inpatient Rehabilitation Facility–Patient Assessment Instrument.

and scaling (e.g., DeVellis, 2003; Netemeyer, Bearden, & Sharma, 2003). The analysis revealed extensive and non-random missing data, an inconsistent and often high required reading level, ambiguous wording and double-barreled questions (i.e., single questions that address more than one construct), consistently high satisfaction ratings with little variability, and an age range of respondents that included children.

On the basis of this analysis and a lengthy, iterative redesign process, the director of quality management and the first author revised the instrument to require a reading level at or below the fourth-grade level and shortened it to 23 statements that focused on specific client perceptions rather than global satisfaction questions. Content and face validity was established by a panel of people from the community and the survey revision team. Each question was evaluated and revised until agreement was reached regarding the meaning and intent of the question (DeVellis, 2003). The 5-point rating scale was retained and ranged from 1 (*strongly disagree*) to 5 (*strongly agree*).

Analysis of the SCC–R responses with our sample showed a greater range of scores and only 3%–6% missing data on any item. Reliability as measured by Cronbach’s α was .970, suggesting excellent internal consistency. Item

analysis revealed that all items contributed to strong reliability; thus, all SCC–R items were retained.

Exploratory factor analysis with varimax rotation to create orthogonal factors identified two factors, labeled Clinical Quality and Client-Centeredness. The first factor explained 60.68% of the variance and the second 11.15%, with a total variance explained of 72.0%. The rotated factor loadings were all weighted cleanly on the two factors, with all weightings above .70.

The Clinical Quality subscale included concepts of efficiency and effectiveness of care and a sense of team effort toward improvement, consistent with the IOM (2001) model aims of effectiveness, safety, timeliness, and equity. The Client-Centeredness subscale represented the IOM concepts of responsiveness to and respectfulness of client needs and values, with client needs guiding decisions. Internal consistency α coefficients for Clinical Quality and Client-Centeredness were .91 and .83, respectively. Table 2 displays the items and factor loadings of the SCC–R.

FIM. The FIM™ was used as a measure of functional status. The FIM is part of the Uniform Data System for Medical Rehabilitation and is used nationwide in rehabilitation hospitals (Ottenbacher, Hsu, Granger, & Fiedler, 1996; Shah, Heinemann, & Manheim, 2007) and research

Table 2. Factor Loadings for Satisfaction and Continuum of Care–Revised Subscales

Item	Subscale	
	Clinical Quality	Client-Centeredness
I would recommend Cardinal Hill to other people.	.864	
Staff seemed to care about me and my needs.	.856	
If I needed help again, I would come back here.	.855	
While here, I have been helped to get better.	.847	
My care took place in a timely and efficient manner.	.828	
The staff worked together to help me.	.827	
I felt the staff spent time with me.	.824	
The staff seemed to be in touch with each other about my care.	.796	
The instructions that I received at discharge were clear to me.	.792	
If I had to wait for something, it was not very long.	.764	
I was kept informed of delays.	.740	
I was not forced to do anything I felt was not helping me.		.794
What I thought seemed to matter to the staff.		.791
I felt confident in the skills of those who helped me.		.771
I was able to ask questions.		.768
I played an active part in my care.		.765
The staff who helped me told me what they were doing and why they were doing it.		.763
I was treated with respect.		.757
Staff taught me to be safe.		.737
I felt good about the quality of my care.		.730
If I had pain, it seemed that staff tried to help me.		.727
I was involved in making decisions about my care with the help of the staff.		.723
The quality of my care did not change from person to person.		.709

studies. It is composed of 18 items assessing the amount of assistance required to perform activities of daily living safely and effectively. Responses range from 7 (*complete independence*) to 1 (*total dependence*). Total scores range from 18 to 126, with higher scores indicating higher functioning. In a review of 11 articles, Ottenbacher et al. (1996) concluded that the FIM provided reliable information regarding clients across different populations and multiple settings when used by trained clinicians. Evidence of the validity of the FIM as an outcome measure is available (e.g., Stineman et al., 1996; Tooth et al., 2003).

Inpatient Rehabilitation Facility–Patient Assessment Instrument.

The Inpatient Rehabilitation Facility–Patient Assessment Instrument (IRF–PAI; Centers for Medicare and Medicaid Services, 2004) was administered at admission in part to determine the inpatient rehabilitation facility’s reimbursement based on conditions and a severity index. The IRF–PAI includes identification information, admission information, payer information, medical information, medical needs, functional modifiers such as pain, discharge information, and quality indicators.

Data Analysis Plan and Model Building

The RRH director of quality management paired existing administrative data from the FIM and IRF–PAI with client responses on the SCC–R using unique identification numbers and produced the deidentified data set used in this study. Before running the logistic regression analyses, authors Custer and Huebner examined the data using SPSS Statistics for Windows, Version 17.0 (SPSS Inc., Chicago,) diagnostic procedures for issues related to multicollinearity and high correlations among the predictor variables that would suggest redundancy and the need to eliminate variables (Tabachnick & Fidell, 1996). None of the variables for any research question were found to be redundant, so all were retained. Diagnostic statistics for goodness of fit were run, and fit was adequate except for small sample sizes in a few cells such as non-White race.

For several reasons, we chose binary logistic regression analyses to test the predictors of satisfaction for each research question. Logistic regression permits the prediction or testing of the relationship of multiple categorical or continuous variables to a dichotomous outcome, and predictors do not have to be normally distributed or to have equal variance within groups. The *log odds ratio* is the probability of being in one group divided by the probability of being in the other group and is interpreted as the change in probability given a change in one unit of measurement. The forced entry method was used, in which all variables are tested in one block to assess their predictive

ability while controlling for the effects of the other predictors. Although this is the default procedure for SPSS, the alternative stepwise logistic regression is subject to random variations in the data and statistical, rather than conceptual, exploration and elimination (Tabachnick & Fidell, 1996).

The research questions for this study were based on a working model with six domains of predictive variables and two domains of dependent variables (Clinical Quality and Client-Centeredness). Model building is not a prescribed procedure; rather, it is a thoughtful procedure guided by theory and practical considerations. To simplify and clarify findings so we could produce a visual model of satisfaction, we tested each research question individually. In interpreting the logistic regression for model building, the level of significance was evaluated using an α of .10. We used a larger-than-customary level of significance to reduce the likelihood of a Type II error (i.e., not detecting real differences); this level is suitable for theory or model building (Tabachnick & Fidell, 1996).

Results

Participants

The sample selection method based on our definitions of *satisfaction* and *dissatisfaction* retained 69.7% of the sample; 769 participants were included in either the Clinical Quality or Client-Centeredness subscale results. Table 3 displays the sample sizes for the two SSC–R subscales. The participants ranged in age from 18 to 100 yr and had received inpatient or outpatient rehabilitation services, or both, during a 27-mo period. Average age at admission was 67.8 yr; 48% were age 72 or older (median). Respondents were more often female (59.9%) and mostly White (94.5%); 328 had neurological conditions and 441 nonneurological conditions. Stays in rehabilitation

Table 3. Participants Satisfied and Dissatisfied With Clinical Quality and Client-Centeredness of Services

Subscale	<i>n</i> (%)	
	Satisfied	Dissatisfied
Clinical Quality only (<i>n</i> = 128)	76 (59.4)	52 (40.6)
Client-Centeredness only (<i>n</i> = 157)	74 (47.1)	83 (52.9)
Included in both (<i>n</i> = 484)—Clinical Quality ^a	352 (72.7)	132 (27.3)
Included in both (<i>n</i> = 484)—Client-Centeredness ^a	344 (71.1)	140 (28.9)
Total, Clinical Quality (<i>n</i> = 612)	428 (69.9)	184 (30.1)
Total, Client-Centeredness (<i>n</i> = 641)	418 (65.2)	223 (34.8)

^aSix clients who were satisfied with client-centeredness were dissatisfied with clinical quality, and 14 clients who were dissatisfied with client-centeredness were satisfied with clinical quality. The other 464 (96%) were satisfied or dissatisfied on both subscales.

ranged from 1 to 77 days, with an average of 15.4 days. All clients received both physical and occupational therapy, and many also received speech therapy. On average, they received a combined total of 45.9 hr of rehabilitation therapy.

Client Demographic Variables and Satisfaction

Independent client demographic variables included age group at admission, gender, and race. We found no significant predictive relationships between the demographic variables and satisfaction with clinical quality. The age group 60–71 yr ($n = 156$) was significantly predictive of satisfaction with client-centeredness (73.1%, $n = 114$, were satisfied, $p = .045$). The odds ratio of 0.61 and the negative B value of -0.498 for clients aged 60–71 yr indicate that all other groups were 0.61 times less likely to report satisfaction. Stated another way, this age group was 1.64 times ($1/0.608$), or 64%, more likely to report satisfaction on the Client-Centeredness subscale.

Additional analysis was performed to determine if the 60–71 age group was unique compared with the other age groups. No significant differences were found in type of diagnosis (neurological vs. nonneurological), days from onset to hospital admission, race, gender, discharge status, pain, comorbidities, self-care changes, or total rehabilitation hours. The 60–71 age group had significantly more pain at discharge (average rating of 4.41) than other participants (average rating of 3.92, $p = .048$). Except for this confusing and perhaps spurious finding, the 60–71 group was nearly identical to the other groups.

Functional Status and Satisfaction

Independent variables indicating functional status included total FIM score and FIM Self-Care score at admission and discharge. FIM Self-Care scores (e.g., eating, bathing, toileting, dressing) at admission and discharge were isolated as a variable of particular relevance to occupational therapy. FIM Self-Care scores at discharge were predictive of satisfaction with client-centeredness ($p = .063$). The average FIM Self-Care score at discharge was 32.8 for the satisfied group and 29.6 for the dissatisfied group. The odds ratio of 1.042 and the B value of 0.041 suggest that for each additional point of independence on FIM Self-Care at discharge, clients were 1.042 times, or 4%, more likely to report satisfaction on the Client-Centeredness subscale, all other factors being equal.

Similarly, the FIM Self-Care score at admission was predictive of satisfaction with clinical quality ($p = .060$). The average FIM Self-Care score at admission was 19.8 for the satisfied group and 19.9 for the dissatisfied group.

The odds ratio of 0.952 and the negative B value of -0.049 suggest that for each point increase in FIM Self-Care score at admission, clients were 1.05 times, or 5%, more likely to report satisfaction on aspects of clinical quality, all other factors being equal.

Medical Status and Satisfaction

Independent variables indicating the client's medical status included neurological versus nonneurological disorder, severity index, number of comorbid conditions, and pain ratings at admission and discharge. Only one variable, neurological versus nonneurological disorder, was significant in the predictive Client-Centeredness subscale model ($p = .045$). Clients with a neurological condition ($n = 275$) were 1.475 times (odds ratio), or nearly 48%, more likely to be satisfied with client-centeredness (61%, $n = 168$, were satisfied) than those with a nonneurological condition.

Additional analysis found that the group with neurological disorders had less pain on admission (average of 4.1 vs. 6.4 for the nonneurological group) and discharge (average of 3.3 vs. 4.6 for the nonneurological group), higher ratings of severity (average ratings of 5.5 vs. 3.3), and a higher number of comorbidities (average of 8.0 vs. 7.2). Thus, despite their complicated conditions, the neurological group expressed significantly more satisfaction than the nonneurological group.

Rehabilitation Process and Satisfaction

Independent variables indicating rehabilitation processes included days from condition onset to hospital admission, length of stay, and total hours of rehabilitation therapy. Admission to rehabilitation within 15 days of onset was significant in predicting satisfaction with client-centeredness ($p = .006$). The odds ratio of 0.510 and the negative B value of -0.673 suggest that participants who were not admitted within 15 days of condition onset were 0.51 times less likely to report satisfaction. Alternatively, clients who were admitted within 15 days of onset ($n = 480$) were 1.96 times (nearly twice) more likely to report satisfaction (68.5%, $n = 329$, were satisfied) on the Client-Centeredness subscale.

Additional analysis compared the groups of participants who were and were not admitted in 15 days or less. The group admitted in 15 days or less was more often female (63.2%, $p = .000$) and had more nonneurological disorders (62.6%, $p = .000$). There were no other significant differences.

The total number of rehabilitation hours was a significant predictor of satisfaction with clinical quality ($p = .075$). The average number of rehabilitation hours was 47.7 for

the satisfied group and 41.3 for the dissatisfied group. The odds ratio for total rehabilitation hours was 1.016, indicating that for each additional hour of rehabilitation therapy, participants were 1.6 times, or 60%, more likely to be satisfied on the Clinical Quality subscale.

Client Gains and Satisfaction

Independent variables included client's change in pain level from admission to discharge, discharge living situation, and change in total FIM functional level from admission to discharge. Change in total FIM scores from admission to discharge was a significant predictor of satisfaction with both clinical quality ($p = .002$) and client-centeredness ($p = .057$). The average FIM change score for clients who expressed satisfaction with client-centeredness was 32.5 (29.1 for dissatisfied clients) and for those who expressed satisfaction with clinical quality 33.1 (28.5 for dissatisfied clients). Based on the log odds, for each 1-point gain in FIM score, clients were 1%–2% more likely to express satisfaction on the Clinical Quality and Client-Centeredness subscales, all other factors being equal.

Occupational Therapy and Satisfaction

Independent variables included FIM Self-Care change score and total hours of occupational therapy. FIM Self-Care change scores were significant predictors of satisfaction for both the Clinical Quality ($p = .000$) and Client-Centeredness ($p = .000$) subscales. The average FIM Self-Care change scores for clients satisfied with clinical quality was 13.0 (11.1 for dissatisfied clients) and for those satisfied with client-centeredness was 12.9 (11.2 for dissatisfied clients). For every 1-point increase in self-care independence as measured on the FIM, clients were 1.059 times, or 6%, more likely to express satisfaction on the Clinical Quality subscale when controlling for number of occupational therapy session hours, a nonsignificant predictor. Similarly, for every 1-point gain in self-care independence as measured on the FIM, clients were 1.053 times, or 5%, more likely to express satisfaction on the Client-Centeredness subscale.

Discussion

The purpose of this study was to develop and apply a client satisfaction questionnaire and to test a working model of the predictors of satisfaction in each of six domains. The results are summarized in Figure 1, which displays the predictors of satisfaction with both clinical quality and client-centeredness. Although all six domains of the working model were associated with satisfaction, satisfaction with the quality of clinical work was based solely on rehabilitation

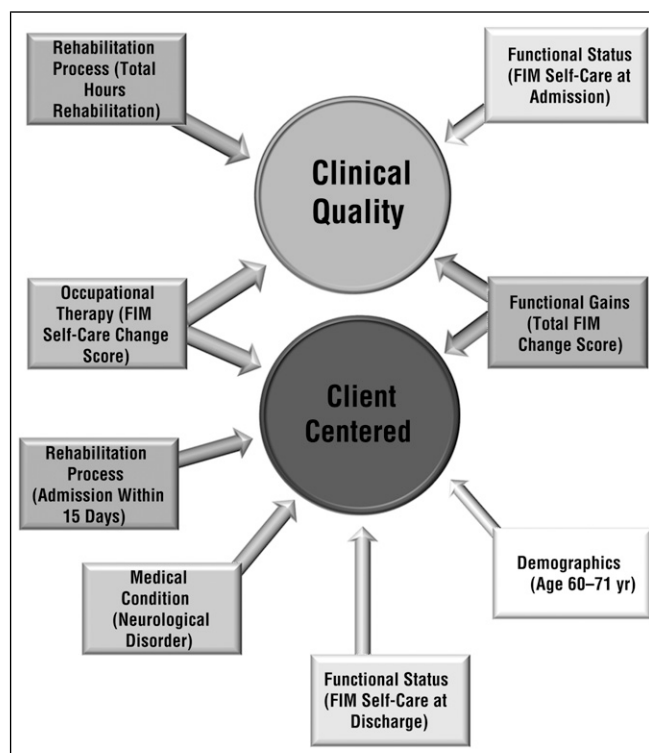


Figure 1. Predictors of satisfaction with clinical quality and client-centeredness of care.

processes and functional status and gains. The occupational therapy outcomes of gains in self-care and gains in functional status were predictors of satisfaction with both clinical quality and client-centeredness. Although it could be argued that satisfaction is a one-dimensional construct, the identification of clients' perceptions of being listened to and cared for is central to a client-centered approach to care of vulnerable groups. Satisfaction with the clinical quality of care and with the client-centeredness of care were tested and retained in this study as essential and distinct elements.

Clients ages 60–71 were 64% more likely to report satisfaction than other groups as a whole, and this finding could not be explained by any other group differences. Other authors (Mancuso et al., 2003; McKinnon, 2001; Nguyen Thi, Briançon, Empereur, & Guillemin, 2002) found that adults age 60 and older were more satisfied than other groups. Thus, satisfaction with rehabilitation may be influenced by age or other possible cohort effects.

Clients with a neurological diagnosis were 48% more likely to be satisfied than those without a neurological disorder. In previous research, most recipients of care were found to be highly satisfied overall (Stiller et al., 2009) regardless of whether the diagnosis was neurological (Ottenbacher et al., 2001; Reker et al., 2002; Tooth et al., 2004) or nonneurological (Grissom & Dunagan, 2001; Hush et al., 2011; Stiller et al., 2009). Deeper analysis showed that the neurological group had higher severity levels and comorbidities, results that are inconsistent

with previous findings of more complications being associated with less satisfaction (Bourne et al., 2010; Pound, Tilling, Rudd, & Wolfe, 1999).

Clients who were admitted to rehabilitation within 15 days from onset of the condition were nearly twice as likely to report being satisfied despite no differences in severity, comorbidities, and pain. For each additional hour of rehabilitation therapy, clients were 1.6% more likely to express satisfaction on the Clinical Quality subscale. Although we could not find any previous work on these predictors, quick access to rehabilitation after onset may be related to complicating medical conditions, more acute illness, or long-term or periodic rehabilitation needs. Clients admitted early versus later in the rehabilitation process will likely need a different approach to occupational therapy. Those admitted later and their caregivers may be more discouraged or may have succumbed to chronic disability and need more encouragement in working toward recovery and regaining function. Grissom and Dunagan (2001) suggested that satisfaction can be improved by helping clients set goals and monitor progress toward achieving those goals.

The most consistent finding was that admission and discharge functional status and improvement in functional status, especially self-care ability, were robust predictors of satisfaction with both clinical quality and client-centeredness. FIM Self-Care change scores and total FIM change scores were significantly predictive of satisfaction with both clinical quality and client centeredness. For every 1-point increase in FIM Self-Care scores at discharge, clients were 42% more likely to express satisfaction on the Client-Centeredness subscale. These functional variables relate to the results clients achieved, and it is reassuring to know that clients who achieved higher functioning, a goal of occupational therapy, were more likely to be satisfied.

Although it may appear self-evident, this study highlights the fundamental, perhaps universal, desire to competently engage in daily living skills and maintain independence. It is important to focus maximum efforts on self-care functions, to track changes in functional status with clients, and to reinforce the worth of their gains. Clients who enter or leave occupational therapy with lower self-care abilities may need special consideration, such as highlighting strengths and gains or emphasizing independence in a few targeted skills. Because most previous research (see review by Crow et al., 2002) identifies the therapeutic relationship as consistently and strongly contributing to satisfaction, clients with lower functioning may need more emphasis on therapeutic rapport and support.

Limitations and Strengths

Several limitations to this study suggest caution in interpreting the results. This study was a naturalistic and applied study; clients were not randomized to any condition. Consequently, one cannot conclude, for example, that improvements in self-care function caused the client to be more satisfied. This study did not test the effects of rehabilitation; clients' natural healing may have resulted in improved function. Numerous confounding variables were not tested that could also influence satisfaction.

The use of logistic regression as a technique to predict satisfaction was the correct statistical design for predicting a dichotomous indicator and was effective in testing the research questions. Although justified by Tabachnick and Fidell (1996), who noted that "the logic of assessing strength of association is different in routine statistical hypothesis testing from situations where models are being evaluated" (p. 578), the level of statistical significance was set at the .10 level, thus perhaps including spurious results. Multiple predictive studies were conducted without adjusting the level of significance, however, as is the norm in traditional studies. Finally, logistic regression tests the impact of variables on the dependent measure by controlling for the effects of the other variables. If the variables were grouped differently, the results might have been different. Numerous other statistical designs might have been appropriate for the data set used in this study. For example, a regression analysis might have been completed with satisfaction measured as a continuous variable, but the results might have been harder to interpret. The cutoff point for prediction could have been set higher or lower using logistic regression to test the sensitivity of different definitions of satisfaction. Other multivariate analyses, such as cluster or discriminant analysis, might have been used.

Despite these limitations, this study included a fairly typical sample of a rehabilitation population. We attempted to highlight the effects of occupational therapy by using the Self-Care portion of the FIM in various predictive models. This study also introduced a method of stratifying the sample to yield a strong test of *satisfaction* versus *dissatisfaction* that we felt was conceptually sound and rooted in the literature.

Implications for Occupational Therapy Practice

The results of this study have the following implications for occupational therapy practice:

- Improvements in functional status, especially self-care abilities, were robust predictors of client satisfaction

and suggest that clients highly value these abilities promoted by occupational therapy.

- Client groups such as those entering rehabilitation more than 15 days after condition onset, those functioning at a lower level at admission or discharge, or those making limited gains may need specialized attention and modifications.
- Future research might separate out FIM Self-Care scores from overall FIM scores to highlight outcomes important in occupational therapy. ▲

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